

ABSTRACT

The methods and systems described provide for an *in-situ* detection of planarity of a layer that is deposited on or etched off the surface of a substrate. Planarity can be detected using various detection mechanisms, including optical, electrical, mechanical

5 and acoustical, in combination with the electrochemical mechanical processing methods, including electrochemical mechanical deposition and electrochemical mechanical etching. Once planarity is detected, a planarity signal can be used to terminate or alter a process that has been previously initiated, or begin a new process.

In a preferred embodiment, an optical detection system is used to detect planarity

10 during the formation of planar conductive layers obtained by electrochemical mechanical processing.